The Future of Required Total System Performance

RTSP

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Sources of material

- **Joint Planning Development Office (JPDO)**
  - Agile Air Transport System Integrated Product Team
  - RTSP Workshop, Feb 23-24, 2006, Seattle, WA
- **Performance-Based Aviation Rulemaking Committee (PARC)**
  - RNP and RCP development
- **International Civil Aviation Organization (ICAO)**
  - RCP - Operational Data Link Panel (OPLINKP)
  - RTSP - Air Traffic Management Requirements Panel (ATMRPP)

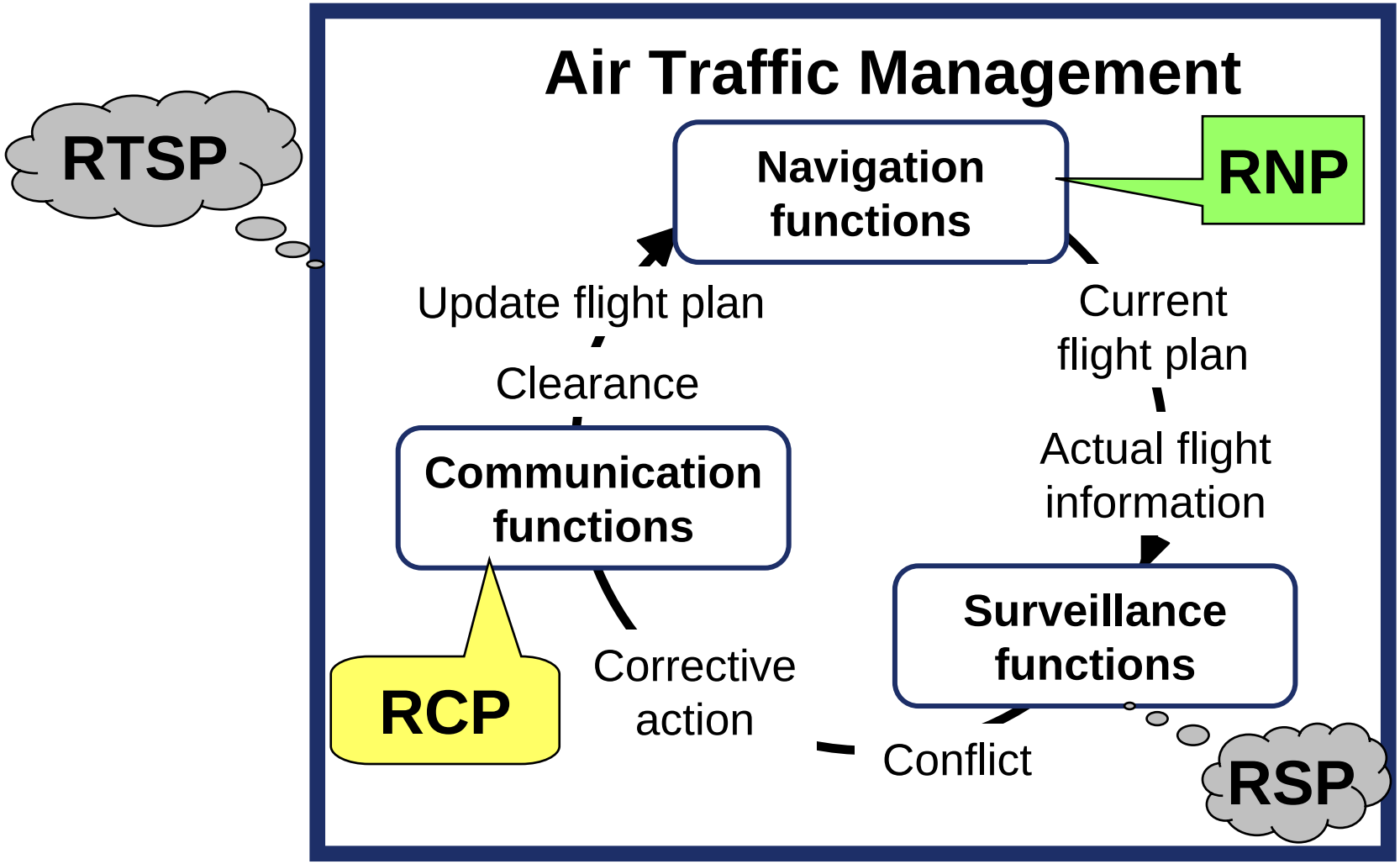
Questions concerning RTSP

- **What is RTSP, and how do we define it?**
- **Why do we need it?**
- **How will RTSP be used, and who will use it?**
- **Do we need to determine RTSP for aircraft, operators, service providers, airspace etc? If so, how?**
- **What other issues should we address? For example, how does this relate to flight plan suffixes etc.?**

What is RTSP? - First Principles

- **RTSP should be:**
  - Operationally-driven, Simple, Useful
  - Requirements are independent of technology
  - A framework to enable flexibility and agility
  - Requirements are independent of any assumption about role of pilots and air traffic personnel (e.g., surveillance could be done by pilot or air traffic)
- **RTSP is the communications, navigation, & surveillance (CNS) performance requirements defined for an operation -- a piece is relative to the aircraft (and operator)**

What is RTSP?



Source: OPLINKP

Why do we need it?

- **RTSP concept**
  - Promotes a competitive market for air traffic management services enabling cost-effective alternatives to meeting business needs in a more timely manner
  - Facilitates regulatory approval processes – provides means to demonstrate performance using a variety of acceptable methods in lieu of time consuming data collection and empirical analyses
  - Enables the provision of varying service levels in common airspace to a fleet of aircraft with varying CNS capabilities and performances

Why do we need it?

- **RTSP concept offers an opportunity to**
  - Define “needed” operations based on performance levels that are not yet obtainable with current technology
  - Define specific levels of {RNP, RCP, RSP} required to perform a given operation in given airspace (approach type, separation standard, etc.) or
  - Provide an explicit basis for trading off RxP for RyP to perform given operation, while maintaining a specific total system performance

Source: PARC JPDO (slightly edited)

How RTSP might be used?

- **To replace "first come, first served" practices with a flexible framework to segregate aircraft according to system needs**
- **Examples of use**
  - Aircraft operator may be told: "To enter/transit this airspace/airportal at this time, you'll need to achieve these values of RNP, RCP, and RSP or show that the combination achieves RTSP…"
  - Aircraft operator with lower levels of CNS capability may be moved to less efficient, less desirable flight paths

How RTSP might be used?

- **To communicate a collection of requirements for the combination and interaction of CN&S**
- **To provide a basis for establishing separation standards based on performance capability for an operation**
- **To provide an efficient basis for flight plan classification**
- **To provide an efficient basis for prescribing airspace requirements**

How RTSP might be used?

- **To create incentives for improved equipage by enabling operational benefit (improved service, etc) from that improved equipage**
- **To provide a basis for defining levels of service in an airspace segment**
- **Part of specifying performance-based operations**
- **To accommodate continual change in technology through flexible combinations of CN&S**

Further considerations

- **Assess some operational examples to show how we might describe an RTSP-based classification scheme**
- **What would such a scheme mean for an**
  - Air Navigation Service Provider?
  - Aircraft Operator?
  - Aircraft or piece of avionics/equipment?
- **How would the scheme apply to**
  - An aircraft certification or operational approval
  - An operation? E.g., flight plan suffixes, monitoring, non-compliance, indication/alerting, contingency, etc.
- **ICAO ATMRPP is defining "RTSP" somewhat differently from use in this workshop; literal parsing of "Required Total System Performance" is misleading since working definitions really only apply to CNS components**
  - How do we work with the international aviation community, given current efforts within ICAO, etc?